



UNITED STATES PATENT AND TRADEMARK OFFICE

T-D
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,411	06/25/2003	Philippe Armangau	EMCR:0095NPU	4172
27927 7590 01/10/2007 RICHARD AUCHTERLONIE NOVAK DRUCE & QUIGG, LLP 1000 LOUISIANA 53RD FLOOR HOUSTON, TX 77002			EXAMINER ONI, OLUBUSOLA	
			ART UNIT 2168	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/603,411

Applicant(s)

ARMANGAU ET AL.

Examiner

OLUBUSOLA ONI

Art Unit

2168

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9,16-18,33,34,41-43,54 and 59-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9, 16-18, 33-34, 41-43, 54, 59, 60, 61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Reopening Prosecution After Appeal

1. ¶ 12.187 Reopening of Prosecution After Appeal Brief or Reply Brief

In view of the appeal brief filed on 08/16/2006, PROSECUTION IS HEREBY REOPENED. In the final office action, claim 9 was considered and it was rejected. However, examiner mistreated the claimed limitations. Thus claims 17-48, 42-43 and 60-61 were not addressed in the office action. Therefore, it would be appropriate to reopen the prosecution to correct those errors above. All Claims rejected as the same grounds of rejection from the previous office action. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

A handwritten signature in black ink, appearing to be "J. M. [unclear]", is written over the text "signing below:". The signature is fluid and cursive.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8,33 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Goldstein et al. (Pub No. 2004/0163009) hereinafter "Goldenstein"

For claim 8, Goldenstein teaches " A method of operating a snapshot copy facility that stores a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time"(See paragraph [0029])

"the snapshot copy facility receiving a request for the difference between a specified older one of the snapshot copies and a specified younger one of the snapshot copies"

(See paragraph [0011] and [0024] wherein Goldstein's teaches include acquiring the difference between the base state snapshot and the data base volume snapshot as implied in applicant's claim language)

"the snapshot copy facility responding to the request by returning the difference between the specified older one of the snapshot copies and the specified younger one of the snapshot copies"(See paragraph [0030-0032] wherein Goldstein's teachings include the difference between the base state snapshot and the data base volume snapshot, as implied in applicant's claim language)

"wherein the snapshot copy facility has an index for each snapshot copy for indicating changes between said each snapshot copy and a next snapshot copy of the production file system, and the method includes scanning the index for the specified older one of the snapshot copies"(See paragraph [0029] and [0043] and fig. 10 of Goldstein's drawings illustrates the repetitive obtaining of a snapshot difference list, as implied in applicant's claim language)

"which includes scanning the indices for a sequence of the snapshot copies including the index for the specified older one of the snapshot copies and a respective index for each of a plurality of snapshot copies of the production file system that are both younger than the specified older one snapshot copies and older than the specified younger one of the snapshot copies"(See paragraph [0027-0029] and fig. 3 Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

"wherein the indices for the sequence of the snapshot copies are scanned by a program routine having an outer loop indexing blocks of data in the file system, and an inner loop

Art Unit: 2168

indexing the snapshot copies in the sequence of the snapshot copies" (See paragraph [0011], [0024-0033], [00421-0043] and fig 3, 4, 6& 7 wherein Goldstein's teachings involve the determination of blocks that have changed, and also include indexing snapshot copies, thus teaches are synonymous).

As per claim 33, Goldstein teaches "storage for storing a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time"(See paragraph [0024] and [0029]) "and at least one processor programmed for receiving a request for the difference between a specified older one of the snapshot copies and a specified younger one of the snapshot copies" (See paragraphs [0011] and [0024] wherein Goldstein's teachings include acquiring the difference between the base state snapshot and the data base volume snapshot as implied in applicant's claim language) "and for responding to the request by returning the difference between the specified older one of the snapshot copies and the specified younger one of the snapshot copies" (See paragraphs [0030] and [0032] wherein Goldstein's teachings include the difference between the base state snapshot and the data base volume snapshot, as implied in applicant's claim language). "wherein the snapshot copy facility has an index for each snapshot copy for indicating changes between said each snapshot copy and a next snapshot copy of the production file system, and said at least one processor is programmed for scanning the index for the specified older one of the snapshot copies" (See paragraphs [0029] and

[0043] and Fig 10 of Goldstein's drawings illustrate the repetitive obtaining of a snapshot difference list, as implied in applicants claim language).

"wherein said at least one processor is programmed for scanning the indices for a sequence of the snapshot copies including the index for the specified older one of the snapshot copies and a respective index for each of a plurality of snapshot copies of the production file system that are both younger than the specified older one snapshot copies and older than the specified younger one of the snapshot copies" (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

"wherein said at least one processor is programmed for scanning the indices for the sequence of the snapshot copies by a program routine having an outer loop indexing the blocks, and an inner loop indexing the snapshot copies in the sequence of the snapshot copies" (See paragraph [0011], [0024-0033], [00421-0043] and fig 3, 4, 6& 7 wherein Goldstein's teachings involve the determination of blocks that have changed, and also include indexing snapshot copies, thus teaches are synonymous).

As per claim 54, Goldstein teaches "a program storage device containing a program for a snapshot copy facility the snapshot copy facility storing a plurality of snapshot copies of a production file system"(See paragraph [0024] and [0029]),

"each of the snapshot copies being a prior state of the production file system at a respective point in time, wherein the program is executable for responding to a request for the difference between a specified older one of the snapshot copies and a specified

younger one of the snapshot copies by returning the difference between the specified older one of the snapshot copies and the specified younger one of the snapshot copies”(See paragraphs [0011] and [0024] and [0027] and [0029] wherein Goldstein's teachings included identifying and producing a list of data blocks which differ between the subsequent snapshots, thus teachings are synonymous).

“wherein the snapshot copy facilities has an index for each snap shot copy for indicating changes between said each snapshot copy and a next snapshot copy of the production file system, and the program is executable for scanning the index for the specified older one of the snapshot copies” (See paragraphs [0029] and [0043] and Fig 10 of Goldstein's drawings illustrate the repetitive obtaining of a snapshot difference list, as implied in applicants claim language).

“wherein the program is executable for scanning the indices for a sequence of the snapshot copies including the index for the specified older one of the snapshot copies and a respective index for each of a plurality of snapshot copies of the production file system that are both younger than the specified older one snapshot copies and older than the specified younger one of the snapshot copies” (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

“wherein the program is executable for scanning the indices for a sequence of the snapshot copies including the index for the specified older one of the snapshot copies and a respective index for each of a plurality of snapshot copies of the production file system that are both younger than the specified older one snapshot copies and older

than the specified younger one of the snapshot copies" (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

"wherein the program is executable for scanning the indices for the sequence of the snapshot copies by a program routine having outer loop indexing the blocks, and an inner loop indexing the snapshot copies in the sequence of the snapshot copies" (See paragraph [0011], [0024-0033], [00421-0043] and fig 3, 4, 6& 7 wherein Goldstein's teachings involve the determination of blocks that have changed, and also include indexing snapshot copies, thus teaches are synonymous).

4. Claims 9,16-18, 34, 41-43, 59, 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldstein in view of Ohran et al (Pub No. US 20020112134) (hereinafter Ohran).

As per claim 9, Goldstein teaches "a method of operating a snapshot copy facility that stores a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time"(See paragraph [0024] and [0029]) "said method comprising:

"the snapshot copy facility receiving a request for the difference between a specified older one of the snapshot copies and a specified younger one of the snapshot copies" (See paragraphs [0030] and [0032] wherein Goldstein's teachings include the difference between the base state snapshot and the data base volume snapshot, as implied in

Art Unit: 2168

applicant's claim language)"and the snapshot copy facility responding to the request by returning the difference between the specified older one of the snapshot copies and the specified younger one of the snapshot copies" (See paragraphs [0024]-[0029] and Fig 3&4).

Goldstein teaches, "determining whether there has been a change between the specified older one of the snapshot... of the snapshot copies" (See paragraphs [0024]-[0028] and Fig 3 of Goldstein's drawings illustrates comparing the base state snapshot and a subsequent series of data volume snapshots. Wherein valid data volume is produced at a consistent state and comparing the based state snapshot and a subsequent series of data volume snapshots to confirm changes, which can only be done if block is valid).

Goldstein does not teach "wherein the snapshot copy facility has an index for each snapshot copy for indicating blocks of data that are know to be invalid in said each snapshot copy..."

However, Ohran's teachings and drawings illustrate writing invalid or corrupted data to certain data blocks in the mass storage device (See paragraph [0015], [0045] and [Fig 3])

Therefore, it would have been obvious at the time of the invention for one of ordinary skill in the art to have modify Goldstein by teachings of Ohran, wherein Ohran's teaches of separating invalid data, while a valid set of data is eventually used to reconstruct the invalid data, and been combined with Goldstein's method will enhance checking for changes of valid data.

As per claim 16, this claim is rejected on the grounds corresponding to the argument given above for rejecting claim 9 above including the following reasons:

“A method of operating a snapshot copy facility that stores a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time, the snapshot copy facility having an index for each snapshot copy for indicating blocks of data in the production file system that have changed between said each snapshot copy and a next snapshot copy of the production file system” See paragraphs [0011] and [0024] and [0027] and [0029] wherein Goldstein’s teachings included identifying and producing a list of data blocks which differ between the subsequent snapshots, thus teachings are synonymous).

“scanning the indices for a sequence of the snapshot copies to determine the blocks that have changed between an older one of the snapshot copies and a younger one of the snapshot copies, the sequence of the snapshot copies including the older one of the snapshot copies and each of the snapshot copies that is both younger than the older one of the snapshot copies and older than the younger one of the snapshot copies” (See paragraphs [0027] and [0028] and Fig 3 of Goldstein’s drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

“wherein the indices for the sequence of the snapshot copies are scanned by a program routine having an outer loop indexing respective blocks, and an inner loop indexing snapshot copies in the sequence of the snapshot copies” (See paragraph [0011], [0024-

Art Unit: 2168

0033], [00421-0043] and fig 3, 4, 6& 7 wherein Goldstein's teachings involve the determination of blocks that have changed, and also include indexing snapshot copies, thus teaches are synonymous).

Goldstein teaches, "determining whether there has been a change between the specified older one of the snapshot..." (See paragraphs [0024]-[0029] and Fig 3 of Goldstein's drawings illustrates comparing the base state snapshot and a subsequent series of data volume snapshots. Wherein valid data volume is produced at a consistent state and comparing the based state snapshot and a subsequent series of data volume snapshots to confirm changes, which can only be done if block is valid).

Goldstein does not teach "wherein the snapshot copy facility has a meta bit map for each snapshot copy for indicating blocks of data that are know to be invalid in ...".

However, Ohran's teachings and drawings illustrate writing invalid or corrupted data to certain data blocks in the mass storage device (See paragraph [0015] and [Fig 3])

Therefore, it would have been obvious at the time of the invention for one of ordinary skill in the art to have modify Goldstein by teachings of Ohran, wherein Ohran's teaches of separating invalid data, while a valid set of data is eventually used to reconstruct the invalid data, and been combined with Goldstein's method will enhance checking for changes of valid data.

For claim 34, this claim is rejected on grounds corresponding to the arguments given above for rejected claim 9 and is similarly rejected.

As per claim 41 this claim is rejected on the grounds corresponding to the argument given above for rejecting claims 16 above, including the following reasons:

Goldstein teaches "storage for storing a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time"(See paragraph [0024] and [0029])

"an index for each snapshot copy for indicating blocks of data in the production file system that have changed between said each snapshot copy and a next snapshot copy of the production file system" (See paragraphs [0011] and [0024] and [0027] and [0029] wherein Goldstein's teachings included identifying and producing a list of data blocks which differ between the subsequent snapshots, thus teachings are synonymous).

"at least one processor programmed for scanning the indices for a sequence of the snapshot copies to determine the blocks that have changed between an older one of the snapshot copies and a younger one of the snapshot copies, the sequence of the snapshot copies including the older one of the snapshot copies and each of the snapshot copies that is both younger than the older one of the snapshot copies and older than the younger one of the snapshot copies" (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

Art Unit: 2168

As per claim 59, this claim is rejected on the grounds corresponding to the argument given above for rejecting claim 16 above including the following reasons:

Goldstein teaches "a program storage device containing a program for a snapshot copy facility, the snapshot copy facility having a plurality of snapshot copies of a production file system, each of the snapshot copies being a prior state of the production file system at a respective point in time, and an index for each snapshot copy for indicating blocks of data in the production file system that have changed between said each snapshot copy and a next snapshot copy of the production file system" (See paragraphs [0011] and [0024] and [0027] and [0029] wherein Goldstein's teachings included identifying and producing a list of data blocks which differ between the subsequent snapshots, thus teachings are synonymous).

"wherein the program is executable for scanning the indices for a sequence of the snapshot copies to determine the blocks that have changed between an older one of the snapshot copies and a younger one of the snapshot copies, the sequence of the snapshot copies including the older one of the snapshot copies and each of the snapshot copies that is both younger than the older one of the snapshot copies and older than the younger one of the snapshot copies" (See paragraphs [0027] and [0028] and Fig 3 of Goldstein's drawings illustrates the base state snapshot and a subsequent series of data volume snapshots).

As per claim 17, 18, 42, 43, 60 and 61 Goldstein teaches "A method of operating a snapshot copy facility that stores a plurality of snapshot copies of a production file

Art Unit: 2168

system, each of the snapshot copies being a prior state of the production file system at a respective point in time”(See paragraph [0029]) the snapshot copy facility having a first index for each snapshot copy for indicating blocks of data in the production file system that have changed between said each snapshot copy and a next snapshot copy ...” (See paragraphs [0029] and [0043] and Fig 10)

Goldstein teaches “responding to a request for the difference between a specific older one of the snapshot copies and a specified younger one of the snapshot copies...snapshot copies and older than the younger one of the snapshot copies”. (See paragraph [0030-0032] wherein Goldstein’s teachings include the difference between the base state snapshot and the data base volume snapshot, as implied in applicant’s claim language).

Goldstein does not teach “the snapshot copy facility having a second index for each snapshot copy for indicating blocks of data that are not in use” Ohran teachings include writing invalid or corrupted data to a certain data block. Wherein the abstract states data loss could be caused by data blocks becoming corrupt or lost, therefore data not in use is equivalent to data loss. (See paragraph [0015] and Fig 3)

It would have been obvious at the time of the invention for one of ordinary skill in the art to have modified Goldstein by the teachings of Ohran, to access the first and second index before checking for changes between the snapshot copies.

Response to Amendment

5. Applicant's arguments filed March 23, 2006 have been fully considered but they are not persuasive. The examiner respectfully traverses applicant's argument.

As per claims 8, 33 and 54 applicant's argued Goldstein does not explicitly teaches "a plurality of snapshot copies of the production file..." On the contrary at paragraph [0027-0029] and Fig 3 of Goldstein's drawings illustrates the comparison of the base state snapshot and a subsequent series (plurality) of data volume snapshots. The comparison is done based on the time, wherein the first state snapshot is compared to the second state snapshot, which is later been compared to the third state snapshot, as implied in applicant's claim language). Applicant's argued Goldstein does not teach "scanning procedure including inner and outer loops that determine the blocks that have changed over a series of at least three successive snapshots". On the contrary Goldstein's teaches at paragraph [0011], [0024-0033], [00421-0043] and fig 3, 4, 6& 7. Wherein Goldstein's teachings involve acquiring snapshots of consistent states of data volume, wherein the snapshots are compared to produce a list of blocks that have changed between the snapshots, i.e., the determination of blocks that have changed, thus teaches are synonymous).

As per claim 9 and 34, applicant argued against the references individually however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.

1986). Applicant argued that Goldstein does not teach “determining a list of snapshot differences requires a determination that the blocks are valid or not in a younger snapshot”.

On the contrary Goldstein teaches, “determining whether there has been a change between the specified older one of the snapshot... of the snapshot copies” (See paragraphs [0024]-[0028] and Fig 3 of Goldstein’s drawings illustrates comparing the base state snapshot and a subsequent series of data volume snapshots. Wherein valid data volume is produced at a consistent state and comparing the based state snapshot and a subsequent series of data volume snapshots to confirm changes, which can only be done if block is valid).

However, Goldstein does not teach “wherein the snapshot copy facility has an index for each snapshot copy for indicating blocks of data that are know to be invalid in said each snapshot copy...”

However, Ohran’s teachings and drawings illustrate writing invalid or corrupted data to certain data blocks in the mass storage device (See paragraph [0015], [0045] and [Fig 3])

Therefore, it would have been obvious at the time of the invention for one of ordinary skill in the art to have modify Goldstein by teachings of Ohran, wherein Ohran’s teaches of separating invalid data, while a valid set of data is eventually used to reconstruct the invalid data, and been combined with Goldstein’s method will enhance checking for changes of valid data.

Applicant also argued that Ohran does not teach "checking for blocks not know to be valid before checking for changes".

On the contrary, Ohran's teachings at paragraph 0015 and drawings at Fig 3 illustrate writing invalid or corrupted data to certain data blocks in the mass storage device. Also at paragraph 0045 of Ohran's teachings include the determining whether there has been a change between the data sets after confirming the valid data block.

As per claim 16, 41 and 59 applicant argued that Goldstein does not teach "the sequence of the snapshot copies including the older one of the snapshot copies and each of the snapshot copies that is both younger than the older one of the snapshot copies and older than the younger one of the snapshot copies", "wherein the indices for the sequence of the snapshot copies are scanned by a program routine having an outer loop indexing respective blocks, and an inner loop indexing snapshot copies in the sequence of the snapshot copies".

On the contrary Goldstein teaches at paragraph 0027, 0028, 0029 and Fig. 3 "the sequence of the snapshot copies including the older one of the snapshot copies and each of the snapshot copies that is both younger than the older one of the snapshot copies and older than the younger one of the snapshot copies"(wherein Goldstein's drawings also illustrates the base state snapshot and a subsequent series of data volume snapshots).

Goldstein also teaches at 0011, 0024-0033, 0042-0043 and fig 3, 4, 6& 7 "the indices for the sequence of the snapshot copies are scanned by a program routine having an

Art Unit: 2168

outer loop indexing respective blocks, and an inner loop indexing snapshot copies in the sequence of the snapshot copies" (Wherein Goldstein's teachings involve the determination of blocks that have changed, and also include indexing snapshot copies, thus teaches are synonymous).

As per claims 17,42 and 60 applicant's argued Ohran does not teach "writing invalid or corrupted data to a certain data block" wherein examiner stated that the abstract teaches data loss could be caused by data block becoming corrupt or lost, therefore data not in use is equivalent to data loss (See paragraph [0015] and fig. 3)) as stated by examiner. Applicant's argued corrupt data or data lost is not equivalent to data not in use, but if there is no need to reconstruct data not in use as stated by applicant's on pg 37 remarks/argument, then data not in use can be equivalent to data lost.

CONCLUSION

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUBUSOLA ONI whose telephone number is 571-272-2738. The examiner can normally be reached on 10.00-6.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIM VO can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2168

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OLUBUSOLA ONI *KP*
Examiner
Art Unit 2168



TIM VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100